

Toksook Bay, Alaska

Wind Turbine #2 Failure Summary

On March 1, 2006 at approximately 4:00 PM Alaska Standard Time, Unit # 2 of the three NorthWind® 100 wind turbines installed in Toksook Bay, Alaska experienced a failure during a powerful winter storm. At the time, the turbine that failed was set up in a test configuration that was different from the other two turbines. The turbine was online briefly when it reached a higher than normal operating speed. The turbine safety system attempted to shut the turbine down, but the mechanical brake's response time was slower than what was specified to the brake vendor. This delay in response time allowed the turbine to rotate well above its specified maximum rotational speed resulting in damage to the turbine blades. All three turbines were shut down until a further investigation could be initiated.

Northern Power (the designer and manufacturer of the turbines) immediately commenced with a full failure mode analysis using data retrieved from the site monitoring system, prior to dispatching engineers to the site. On March 15, Northern Power flew the chief product engineer and a lead electrical engineer to the site and they examined all of the turbines. NPS engineers instituted corrections to the braking system and commissioned the units for full operations.

On March 27, 2006 the two undamaged turbines (Units #1 and 3) were returned to full automatic operation and the damaged turbine was secured and left in place. The two operating units have since accrued significant run time at rated power and are performing well.

Northern Power plans to replace the damaged unit and have it back in operation by the end of June 2006.